JUNE 8

Ship

Work Order ID 84520 *84520*

May-15-12 10:40:05 AM

Item ID: D3391-015 **Accept** *N900040100* **Setup Start** *NS1*

Revision ID: **Stop** *NS2*

Item Name: Aft Tube Assembly

Start Date: 15/05/2012 **Start Qty:** 1.00 *1* **Cust Item ID:**

Required Date: 06/06/2012 **Req'd Qty:** 1.00 *1* **Customer:**

Reference:

Run Start *NR1*

Stop *NR2*

Approvals: **Process Plan:** MLJ **Date:** 12/05/15 **Tooling:** ______ **Date:** ______

QC: ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp

Draw Nbr	Revision Nbr
D3391	I

100 *100* Mori Seiki — Mori Seiki CNC Lathe Large
MORI SEIKI CNC LATHE LARGE — 0.00 / 0.00
Memo: Turn as per Folio FA 599 Rev: AA & Dwg D3391 Rev: I
Reject Qty: [signature] / KL — 12-5-22

110 *110* QC — Quality Control
QC2- Inspect parts off machine FAI/FAIB — 0.00 / 0.00
Memo
[signature] KL — 12/05/22

120 *120* HAAS 1 — HAAS CNC vertical machine #1
HAAS CNC VERTICAL MACHINING #1 — 0.00 / 0.00
Memo: 1-Machine as per Folio FA 599 Rev: AA & Dwg D3391 Rev: I
2-Deburr
B.a 12/05/29 — Accept Qty: 1 — Reject Qty: ɸ

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ______________ **PAR #:** _______ **Fault Category:** ______________ **NCR:** Yes No **DQA:** _____ **Date:** _________

QA: N/C Closed: _____ **Date:** _________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 84520

May-15-12 10:40:05 AM

84520

Item ID: D3391-015

Revision ID:

Item Name: Aft Tube Assembly

Start Date: 15/05/2012 **Start Qty:** 1.00 *1*

Required Date: 06/06/2012 **Req'd Qty:** 1.00 *1*

Reference:

Accept *N900040100*

Setup **Start** *NS1*

Stop *NS2*

Cust Item ID:

Customer:

Run **Start** *NR1*

Stop *NR2*

Approvals: **Process Plan:** ________ **Date:** ________ **Tooling:** ________ **Date:** ________

QC: ________ **Date:** ________ **SPC (Y/N):** ________ **Date:** ________

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 *130* QC Quality Control	QC2- Inspect parts off machine FAI/FAIB Memo	0.00 0.00	B.A 12/05/29			1	ø		
140 *140* QC Quality Control	QC8- Inspect parts - second check Memo	0.00 0.00	AK 12/05/31			1	ø		
150 *150* Skidtubes Skidtubes	Skidtubes Memo 1-Drill (PILOT HOLE) aft cap holes per Dwg D3391 using DT8803	0.00 0.00				(1)	SGD	12-05-31	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

QA: N/C Closed: _____ **Date:** ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevD

Work Order ID 84520

May-15-12 10:40:05 AM

84520

Item ID:	D3391-015	**Accept**	*N900040100*
Revision ID:		**Setup Start**	*NS1*
Item Name:	Aft Tube Assembly	**Stop**	*NS2*
Start Date:	15/05/2012	**Start Qty:** 1.00	*1*
Required Date:	06/06/2012	**Req'd Qty:** 1.00	*1*
Reference:		**Cust Item ID:**	
		Customer:	

Approvals: **Process Plan:** ________ **Date:** ________ **Tooling:** ________ **Date:** ________

QC: ________ **Date:** ________ **SPC (Y/N):** ________ **Date:** ________

Run Start *NR1* **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160 *160* CNC Bend 1 CNC Delta 100 Bender	BENDING MACHINE - SKIDTUBES **Memo** Form as per Dwg D3391	0.00 0.00				DC	12/05/31		
170 *170* QC Quality Control	QC5- Inspect part completeness to step on W/O **Memo**	0.00 0.00				DP	12-5-31		

3.96

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W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ________________ **PAR #:** _______ **Fault Category:** ________________ **NCR:** Yes No **DQA:** _____ **Date:** ________

QA: N/C Closed: _____ **Date:** ________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Item ID: D3391-015 **Accept** *N900040100* **Setup** **Start** *NS1* **Stop** *NS2*

Revision ID:

Item Name: Aft Tube Assembly

Start Date: 15/05/2012 **Start Qty:** 1.00 *1* **Cust Item ID:**

Required Date: 06/06/2012 **Req'd Qty:** 1.00 *1* **Customer:**

Reference:

Approvals: **Process Plan:** ____ **Date:** ____ **Tooling:** ____ **Date:** ____ **Run** **Start** *NR1*

QC: ____ **Date:** ____ **SPC (Y/N):** ____ **Date:** ____ **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180 *180* Skidtubes Skidtubes	Skidtubes	0.00 0.00							

Memo

1-Open Aft cap pilot hole to .208" as per Dwg D3391

2-Drill float bag holes using DT8809 as per Dwg D3391(All holes)

3-Drill wearplate holes as per Dwg D3391 using DT8878(Mid Tube) & DT8217 Wearplate Jig .
*****Do Not Open To Finished Size*****

4-Drill Wearshoe holes as per DWG D3391 using DT8939 locating from 2 previously drilled aft wearplate holes.

5-Open wearplate holes to 0.250" and c'bore as per dwg D3391

6-Open up all wearshoe , wearplate to 0.297"and float bag holes to 0.328" as per Dwg D3391.

7- Tranfer holes from D3391-013 for electric step. Open holes as per dwg D3391 section cc-cc

8-Deburr

CF 12-6-4.

DC 12/06/04

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ______________ **PAR #:** ______ **Fault Category:** ______________ **NCR:** Yes No **DQA:** _____ **Date:** _______

QA: N/C Closed: _____ **Date:** _______

NCR:	WORK ORDER NON-CONFORMANCE (NCR)								
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 84520 *84520*

May-15-12 10:40:05 AM

Item ID: D3391-015 **Accept** *N900040100* **Setup Start** *NS1*

Revision ID:

Item Name: Aft Tube Assembly **Stop** *NS2*

Start Date: 15/05/2012 **Start Qty:** 1.00 *1* **Cust Item ID:**

Required Date: 06/06/2012 **Req'd Qty:** 1.00 *1* **Customer:**

Reference:

Approvals: **Process Plan:** ________ **Date:** ________ **Tooling:** ________ **Date:** ________ **Run Start** *NR1*

QC: ________ **Date:** ________ **SPC (Y/N):** ________ **Date:** ________ **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190 *190* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 8/17/06/05 0.00							
200 *200* HandFinish Hand Finishing	Chemical Conversion Coat per QSI005 4.1 Memo	0.00 0.00				1	TKG	12-6-05	
205 *205* QC Quality Control	~~QC3~~- Inspect Part Finish QC7 Memo	0.00 0.00				1	SAD	12-06-05	

PTO

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W/O: 81520	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
12-6-5	205	Should read QC7	[illegible]	12-6-5			

Part No: D3391-015 **PAR #:** ______ **Fault Category:** ______________ **NCR:** Yes No **DQA:** _____ **Date:** ________

QA: N/C Closed: _____ **Date:** ________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
			Corrective Action Section B					
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector

NOTE: Date & initial all entries

Item ID: D3391-015 **Accept** *N900040100* **Setup Start** *NS1*
Revision ID:
Item Name: Aft Tube Assembly **Stop** *NS2*

Start Date: 15/05/2012 **Start Qty:** 1.00 *1* **Cust Item ID:**
Required Date: 06/06/2012 **Req'd Qty:** 1.00 *1* **Customer:**
Reference:

Approvals: **Process Plan:** ______ **Date:** ______ **Tooling:** ______ **Date:** ______ **Run Start** *NR1*
QC: ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______ **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210 *210* Skidtubes Skidtubes	Skidtubes	0.00				¢	12/06/05		
	Memo 1-Install crossbolt spacers per dwg D3391 A/R Magnabond 6398 batch: M120666 2- Grind flush	0.00							
220 *220* QC Quality Control	QC5- Inspect part completeness to step on W/O	0.00 S 12/06/06							
	Memo	0.00							
225 *225* HandFinish Hand Finishing	Pressure Wash per QSI005 4.3	0.00				1	MG	12-6-7	
	Memo AND REALODINE AS PER PAR09-043	0.00							

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W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ________________ **PAR #:** ______ **Fault Category:** ______________ **NCR:** Yes No **DQA:** _____ **Date:** _________

QA: N/C Closed: _____ **Date:** _________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
			Corrective Action Section B					
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector

NOTE: Date & initial all entries

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Item ID: D3391-015
Revision ID:
Item Name: Aft Tube Assembly

Accept *N900040100*

Setup **Start** *NS1*
Stop *NS2*

Start Date: 15/05/2012 **Start Qty:** 1.00 *1*
Required Date: 06/06/2012 **Req'd Qty:** 1.00 *1*
Reference:

Cust Item ID:
Customer:

Approvals: **Process Plan:** ____________ **Date:** ________ **Tooling:** ________ **Date:** ________
QC: ________________ **Date:** ________ **SPC (Y/N):** ________ **Date:** ________

Run **Start** *NR1*
Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230 *230* Powdercoat Powder Coating M121134	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum	0.00				1X	Ø	—	M.L. 12/06/07
	Memo START TIME: 10:45 OVEN TEMPERATURE: 320°F FINISH TIME: 11:15	0.00							
240 *240* QC Quality Control	QC3- Inspect Part Finish	0.00				1X	Ø		Al 12/06/07
	Memo	0.00							

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ______________ **PAR #:** _______ **Fault Category:** ______________ **NCR:** Yes No **DQA:** _____ **Date:** _________

QA: N/C Closed: _____ **Date:** _________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
			Corrective Action Section B					
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector

NOTE: Date & initial all entries

Item ID:	D3391-015	**Accept**	*N900040100*
Revision ID:			
Item Name:	Aft Tube Assembly		
Start Date:	15/05/2012	**Start Qty:** 1.00	*1*
Required Date:	06/06/2012	**Req'd Qty:** 1.00	*1*
Reference:			

Cust Item ID:
Customer:

Setup **Start** *NS1*
Stop *NS2*

Run **Start** *NR1*
Stop *NR2*

Approvals: **Process Plan:** ______ **Date:** ______ **Tooling:** ______ **Date:** ______
QC: ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
250 *250* HandFinish Hand Finishing	HandFinishing **Memo** 1-Install inserts per dwg D3391 2-Install Aft Cap as per Dwg D3391 A/R Sikaflex-241/-291 M121409 Sikaflex expiry date: 13/07 3- INSTALL WEARPLATE AS PER DWG	0.00 0.00				1	0		06/07
260 *260* QC Quality Control	QC5- Inspect part completeness to step on W/O **Memo**	0.00 0.00 5/10/12							

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ______________ **PAR #:** _______ **Fault Category:** ______________ **NCR:** Yes No **DQA:** _____ **Date:** _________

QA: N/C Closed: _____ **Date:** _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 84520
May-15-12 10:40:05 AM

84520

Item ID: D3391-015
Revision ID:
Item Name: Aft Tube Assembly

Accept *N900040100*

Setup Start *NS1*
Stop *NS2*

Start Date: 15/05/2012 **Start Qty:** 1.00 *1*
Required Date: 06/06/2012 **Req'd Qty:** 1.00 *1*
Reference:

Cust Item ID:
Customer:

Approvals: **Process Plan:** ________ **Date:** ________ **Tooling:** ________ **Date:** ________
QC: ________ **Date:** ________ **SPC (Y/N):** ________ **Date:** ________

Run Start *NR1*
Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270 *270* Packaging Packaging	Identify as per dwg & Stock Location W10	0.00	D412-742-041/B84527			1	/	[illegible]	12/04/13
	Memo	0.00							
280 *280* QC Quality Control	QC21- Final Inspection - Work Order Release	0.00							12/6/14
	Memo	0.00							

MF 12-06-18

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ________________ **PAR #:** ______ **Fault Category:** ________________ **NCR:** Yes No **DQA:** _____ **Date:** _________.

QA: N/C Closed: _____ **Date:** _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Picklist Print

May-15-12 10:40:10 AM

Work Order ID: 84520 *84520*

Parent Item: D3391-015 *D3391-015*

Parent Item Name: Aft Tube Assembly

Start Date: 15/05/2012 **Required Date:** 06/06/2012

Start Qty: 1.00 **Required Qty:** 1.00

Comments:

IPP rev A 05.12.13 New issue EC
IPP rev B 06.02.09 Dwg @ revD EC
IPP rev C 07.03.13 dwg @revF ec
IPP rev D 07.10.31 ecn 1053P EC
IPP Rev:E ECN 1056 07-11-13 DD verified by: EC
IPP Rev:F 08-09-10 revH as per dwg DD verified by:EC IPP Rev:G
11.11.14 AS PER REV.I DD verified by:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
AN960C10L	NAS1149C0332 R	Purchased	No			100	Each	0.0000	10	10			
AN960C10L washer								M181509 **		(x10)	JH	12/06/07	
D6014-090		Manufactured	No			210	Each	75.0000	1	1			
D6014-090 ALUMINUM EXTRUSION								**					

Location	Loc Qty	Loc Code	
LG	75		
77332	26		
79742	49		1 mm.L 12/05/14

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
ALS4-1032-130		Purchased	No			250	Each	3,301.000	14	14			
ALS4-1032-130 Insert								**			JH	12/06/07	

Location	Loc Qty	Loc Code	
ST280	205		
119084	116		
120671	89		
ST281	174		
120807	36		
120837	138		
ST282	2922		
121269	2922		X14

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ **PAR #:** _______ **Fault Category:** __________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

QA: N/C Closed: _____ **Date:** _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID: 84520 *84520*

Parent Item: D3391-015 *D3391-015*

Parent Item Name: Aft Tube Assembly

Start Date: 15/05/2012 **Required Date:** 06/06/2012

Start Qty: 1.00 **Required Qty:** 1.00

ALS4-1032-225 | Purchased | No | 250 | Each | 904.0000 | 8 | 8

ALS4-1032-225 **

Insert

Location		Loc Qty	Loc Code
ST281		881	
	108696	146	
	110768	62	
	118386	55	
	118966	68	
	121269	550	
ST282		23	x8
	120410	10	
	120451	13	

ALS4-428-165 | Purchased | No | 250 | Each | 453.0000 | 4 | 4

ALS4-428-165 **

Inserts

Location		Loc Qty	Loc Code
FP002		453	
	114172	18	
	117769	435	x4

AN3C4A | Purchased | No | 250 | Each | 1,969.000 | 6 | 6

AN3C4A **

BOLT

Location		Loc Qty	Loc Code
ST350		1969	
	120187	63	
	120521	28	
	120769	38	
	121205	1000	
	121556	840	x6

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ **PAR #:** _______ **Fault Category:** __________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

QA: N/C Closed: _____ **Date:** _________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevD

Work Order ID: 84520 *84520*

Parent Item: D3391-015 *D3391-015*

Parent Item Name: Aft Tube Assembly

Start Date: 15/05/2012 **Required Date:** 06/06/2012

Start Qty: 1.00 **Required Qty:** 1.00

AN3C5A | Purchased | No | 250 | Each | 1,398.000 | 4 | 4

AN3C5A ** JM 12/06/07

Bolt

Location		Loc Qty	Loc Code	
FP001		7		
	115835	7		
ST350		1391		
	116419	28		
	117343	13		
	117764	7		
	117872	2		
	119749	23		
	120423	28		
	121068	12		
	121255	500		
	121444	278		X4
	121708	500		

D2646 | Manufactured | No | 250 | Each | 37.0000 | 1 | 1

D2646 ** JM 12/06/07

Aft Cap

Location		Loc Qty	Loc Code	
FP002		37		
	62678	5		
	68280	5		
	70945	1		
	71070	2		
	73294	1		
	73825	2		
	78018	5		
	79562	16		X1

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

QA: N/C Closed: _____ **Date:** ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID: 84520 *84520*

Parent Item: D3391-015 *D3391-015*

Parent Item Name: Aft Tube Assembly

Start Date: 15/05/2012 **Required Date:** 06/06/2012

Start Qty: 1.00 **Required Qty:** 1.00

D3670-4-200 Manufactured No 250 Each 89.0000 14 14

D3670-4-200 **

SPACER

Location	Loc Qty	Loc Code
LG	40	
80360	40	
LG001	49	
81972	49	

D3672-1 Manufactured No 250 Each 1,214.000 2 2

D3672-1 **

Phenolic Washer

Location	Loc Qty	Loc Code
ST060	1214	
72229	4	
76277	210	
80369	500	
83608	500	

D4095-047 Manufactured No 250 Each 13.0000 1 1

D4095-047 **

Wearpad Assembly

Location	Loc Qty	Loc Code
FP002	13	
80703	1	
81626	12	

D4095-049 Manufactured No 250 Each 21.0000 1 1

D4095-049 **

Wearpad Assembly

Location	Loc Qty	Loc Code
FP002	21	
81612	21	

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ______________ **PAR #:** _______ **Fault Category:** ______________ **NCR:** Yes No **DQA:** _____ **Date:** _________

QA: N/C Closed: _____ **Date:** _________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	84520
Description: Float Skidtube (412)	Part Number:	D3391-3
Inspection Dwg: D3391 Rev: ~~H~~ ~~I~~ M		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Lathe Section						
14.000	+/-0.010	14.000	✓			
3.500	+/-0.010	3.496	✓			
88.93	+/-0.030	88.92	✓			
Ø3.200	+/-0.010	3.200	✓			
88.93	+/-0.030	88.92	✓			
Ø3.750	+/-0.010	3.750	✓			
30° x ~~.160~~" .060 chamfer	+/-0.010	30° x .060	✓			

Measured by:	MMML / KL	Date:	12/05/19
Audited by:	[signature]	Date:	12/05/31

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
HAAS Section						
1.526	+0.000/-0.030	1.516	✓		Mic	GA-10
7.500	+/-0.010	7.500	✓		Vern	CNC-02
27.750	+/-0.010	27.750	✓		Tape	GA-12
31.750	+/-0.010	31.750	✓		"	"
35.250	+/-0.010	35.250	✓		"	"
3.300	+/-0.010	3.305	✓		Vern	GA-01
0.200	+/-0.010	0.200	✓		"	"
3.520	+/-0.010	3.521	✓		"	"
0.687	+0.010/-0.000	0.687	✓		"	"
R0.062	+/-0.010	R 0.063	✓		R-6	ref.
Ø0.484	+0.005/-0.001	Ø 0.489	✓		Vern	GA-01

Measured by:	D.A	Date:	12/05/29
Audited by:	[signature]	Date:	12/05/31

Rev	Date	Change	Revised by	Approved
A	06.04.24	New Issue P/O D3391-015/-025	KJ/JLM	
B	06.06.19	Dwg revision update	KJ/JLM	
C	07.04.20	Ø0.208 dimension removed	KJ/JLM	
D	07.09.06	0.400 dimension removed	KJ/JLM	
E	07.11.23	Dwg Rev. updated	KJ/EC/DD	
F	09.04.27	Dimensions updated per Rev H and NCR09-028	KJ/JLM	
G	09.11.16	Dimension 0.200 removed	KJ	
H	11.06.21	Dimension 44.995 removed	KJ	[signature]

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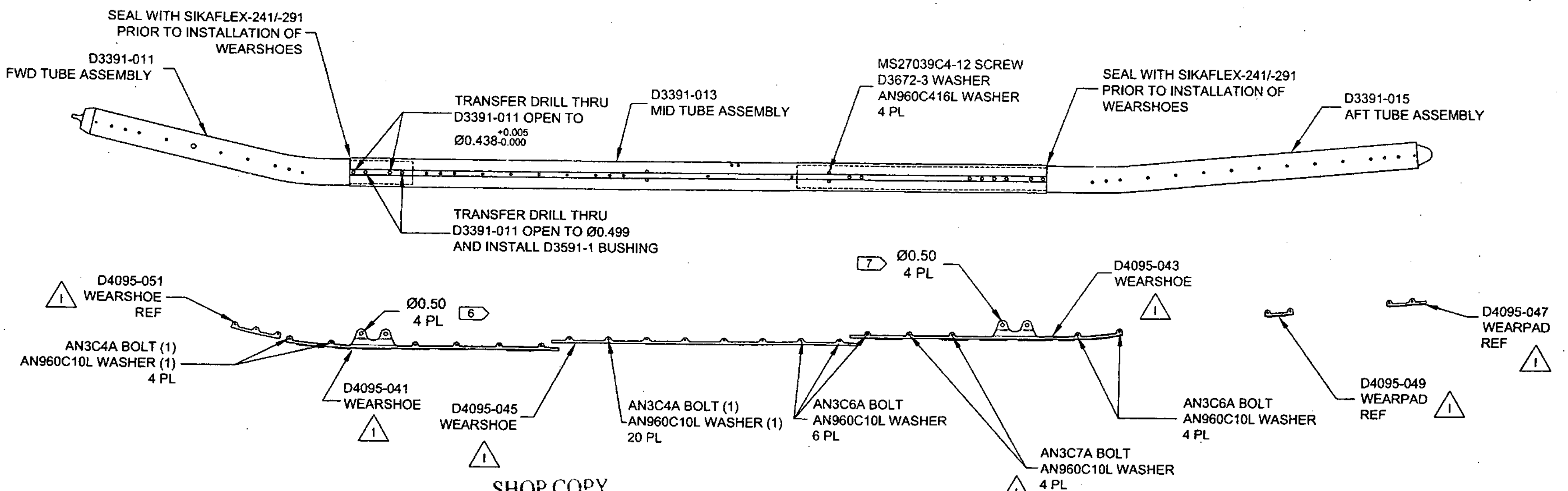
W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ______________ **PAR #:** ______ **Fault Category:** ______________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ______________ **Disposition:** ______________ **QA: N/C Closed:** ________ **Date:** ________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
			Corrective Action Section B					
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector

NOTE: Date & initial all entries



D3391-041 ASSEMBLY

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 04520 MLJ 12/05/15

RELEASED
2011-11-04
ECN# 11-662

D3391-041 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY -041	PART NUMBER	DESCRIPTION
X	D3391-041	FLOAT SKIDTUBE ASSEMBLY
1	D3391-011	FWD TUBE ASSEMBLY
1	D3391-013	MID TUBE ASSEMBLY
1	D3391-015	AFT TUBE ASSEMBLY
2	D3591-1	BUSHING
4	D3672-3	WASHER
1	D4095-041	WEARSHOE
1	D4095-043	WEARSHOE
1	D4095-045	WEARSHOE
1	D4095-047	WEARPAD
1	D4095-049	WEARPAD
1	D4095-051	WEARSHOE
24	AN3C4A	BOLT
10	AN3C6A	BOLT
4	AN3C7A	BOLT
38	AN960C10L	WASHER
4	MS27039C4-12	SCREW
4	AN960C416L	WASHER

GENERAL NOTES

1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
   POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
2) COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.
6) FIT D4095-041 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND TRANSFER DRILL Ø0.50 HOLES FROM SADDLE TO D4095-041
7) FIT D4095-043 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH THE APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND TRANSFER DRILL Ø0.50 HOLES FROM SADDLE TO D4095-043

REV.	DESCRIPTION	BY	DATE
I	REMOVE GASKETS AND REPLACE ALL WEARSHOES; PARTS LIST UPDATE, ZN A8-1, ZN A8-2, ZN A6-4, ZN B6-8; LPS-3 COATING REMOVED FROM NOTE 2, ZN A3-1, ZN A3-2, REMOVED INSERT AELS-1032-130, ZN B6-4, B2-4, C7-8, C3-8; REMOVED HOLES, ZN D6-4 ZN D2-4, ZN D7-8, ZN D3-8	XDF	11.10.13
H	DRAWING UPDATED TO CURRENT STANDARDS. SHT 1 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. SHT 2 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. (FOR FURTHER INFO SEE DSI 9364 & NCR 08-074)	AJS	08.08.20
G	REPLACE NAS INSERTS W/ AELS INSERTS SWITCH TO D3670-XXXX SPACERS FOR INSTALLING FLOAT BAGS, DWG REORGANIZED FOR CLARITY	DC	07.07.31
F	ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021	PH	07.01.18
E	CHANGE TOLERANCE, EASE MANUFACTURE	PH	06.04.25
D	UPDATE TOLERANCE, CHANGE HOLE SIZE	PH	06.01.23
C	LENGTHEN AFT EXTENSION	PH	05.09.27
B	DRAWING UPDATES	PH	05.06.10
A	NEW ISSUE	PH	05.02.07

DESIGN	PH	**DART AEROSPACE USA, INC** KENT, WA
DRAWN	XDF	
CHECKED		DRAWING NO. D3391 — REV. I — SHEET 1 OF 8
MFG. APPR.		
APPROVED		TITLE 412 FLOAT SKIDTUBE — SCALE NTS
DE APPR.		
DATE	11.10.13	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

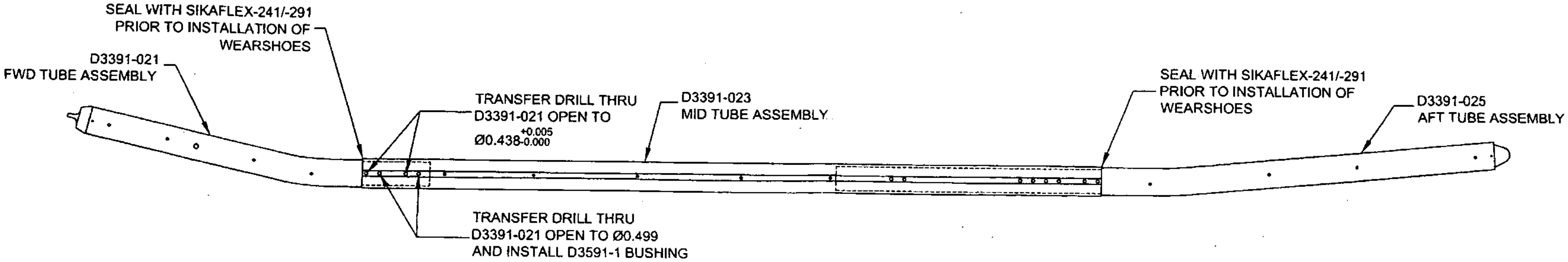
Part No: ____________________ PAR #: _______ Fault Category: __________________ NCR: Yes No DQA: _____ Date: _________

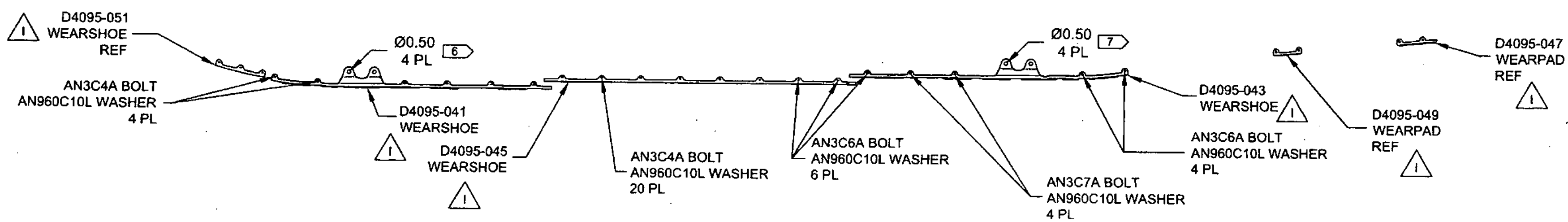
Resolution: ____________________ Disposition: ____________________ QA: N/C Closed: __________ Date: _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

E4520





D3391-043 ASSEMBLY

D3391-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY -043	PART NUMBER	DESCRIPTION
X	D3391-043	FLOAT SKIDTUBE ASSEMBLY
1	D3391-021	FWD TUBE ASSEMBLY
1	D3391-023	MID TUBE ASSEMBLY
1	D3391-025	AFT TUBE ASSEMBLY
2	D3591-1	BUSHING
1	D4095-041	WEARSHOE
1	D4095-043	WEARSHOE
1	D4095-045	WEARSHOE
1	D4095-047	WEARPAD
1	D4095-049	WEARPAD
1	D4095-051	WEARSHOE
24	AN3C4A	BOLT
10	AN3C6A	BOLT
4	AN3C7A	BOLT
38	AN960C10L	WASHER

GENERAL NOTES

1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
2) COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON"
AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.
6) FIT D4095-041 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND TRANSFER DRILL Ø0.50 HOLES FROM SADDLE TO D4095-041
7) FIT D4095-043 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH THE APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND TRANSFER DRILL Ø0.50 HOLES FROM SADDLE TO D4095-043

RELEASED 2011-11-04

DESIGN	PH	DART AEROSPACE USA, INC KENT, WA
DRAWN	XDF	
CHECKED		DRAWING NO. D3391 — REV. I — SHEET 2 OF 8
MFG. APPR.		
APPROVED		TITLE 412 FLOAT SKIDTUBE — SCALE NTS
DE APPR.		
DATE	11.10.13	

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

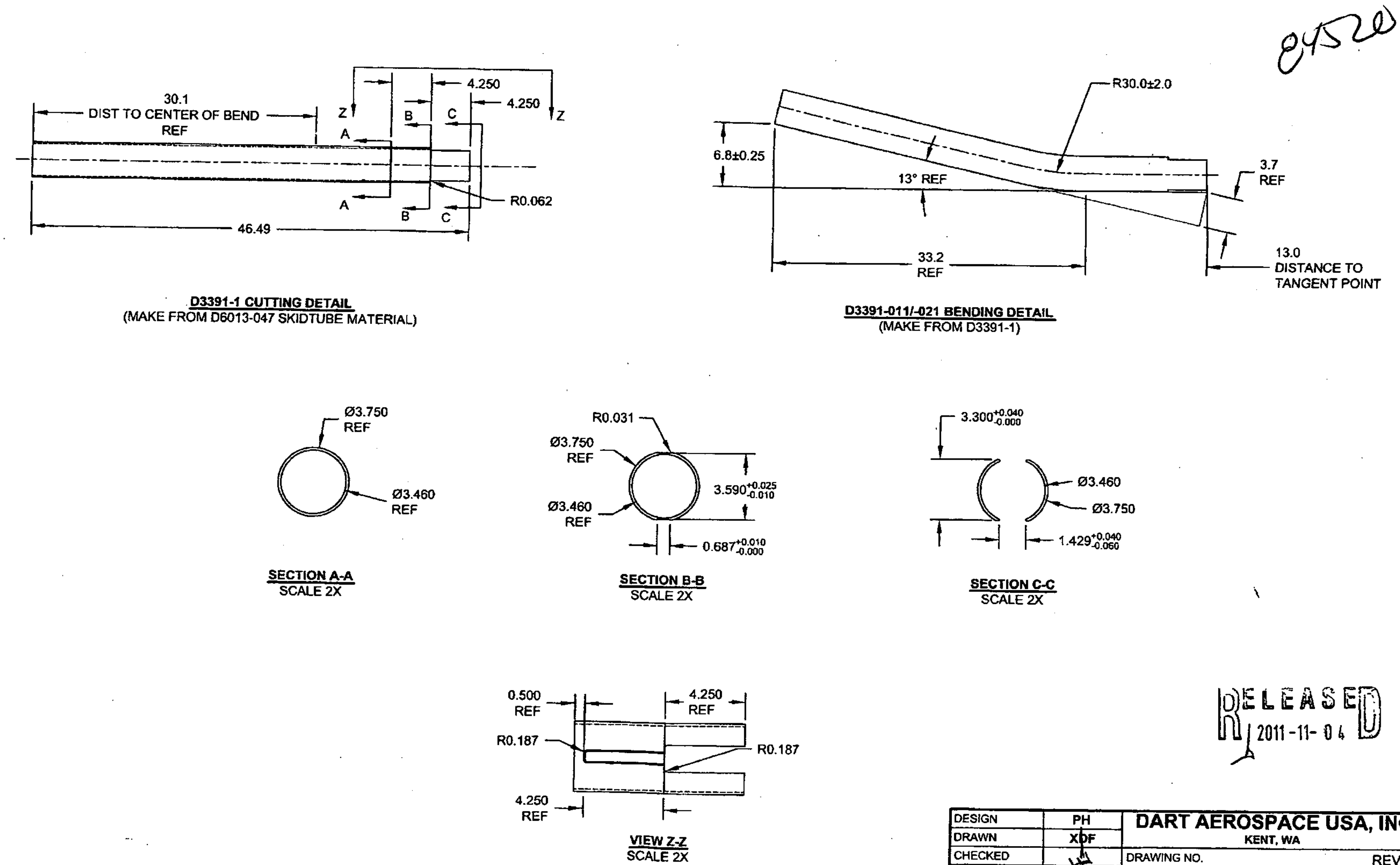
Part No: ____________________ PAR #: _______ Fault Category: __________________ NCR: Yes No DQA: _____ Date: _________

Resolution: ____________________ Disposition: ____________________ QA: N/C Closed: __________ Date: _________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE



DESIGN	PH	DART AEROSPACE USA, INC KENT, WA	
DRAWN	XDF	DRAWING NO. D3391	REV. I SHEET 3 OF 8
CHECKED			
MFG. APPR.			
APPROVED		TITLE 412 FLOAT SKIDTUBE	SCALE NTS
DE APPR.			
DATE	11.10.13		

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

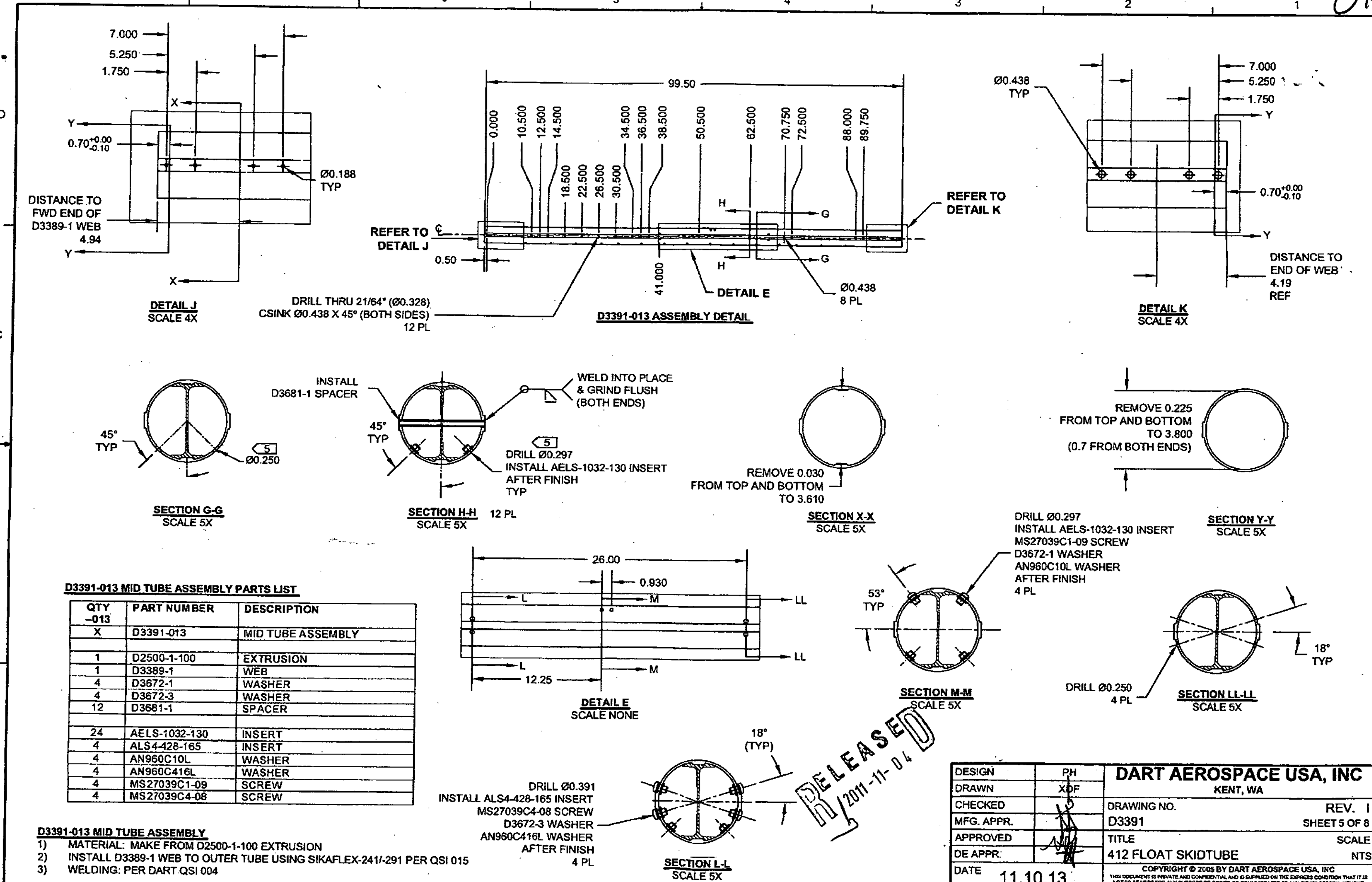
Part No: ____________________ **PAR #:** _______ **Fault Category:** ________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

Resolution: ____________________ **Disposition:** ____________________ **QA: N/C Closed:** __________ **Date:** _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE



D3391-013 MID TUBE ASSEMBLY PARTS LIST

QTY -013	PART NUMBER	DESCRIPTION
X	D3391-013	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
4	D3672-1	WASHER
4	D3672-3	WASHER
12	D3681-1	SPACER
24	AELS-1032-130	INSERT
4	ALS4-428-165	INSERT
4	AN960C10L	WASHER
4	AN960C416L	WASHER
4	MS27039C1-09	SCREW
4	MS27039C4-08	SCREW

D3391-013 MID TUBE ASSEMBLY

1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015
3) WELDING: PER DART QSI 004

DESIGN	PH	DART AEROSPACE USA, INC — KENT, WA
DRAWN	XDF	
CHECKED		DRAWING NO. D3391 — REV. I — SHEET 5 OF 8
MFG. APPR.		
APPROVED		TITLE 412 FLOAT SKIDTUBE — SCALE NTS
DE APPR.		
DATE	11.10.13	

Dart Aerospace Ltd

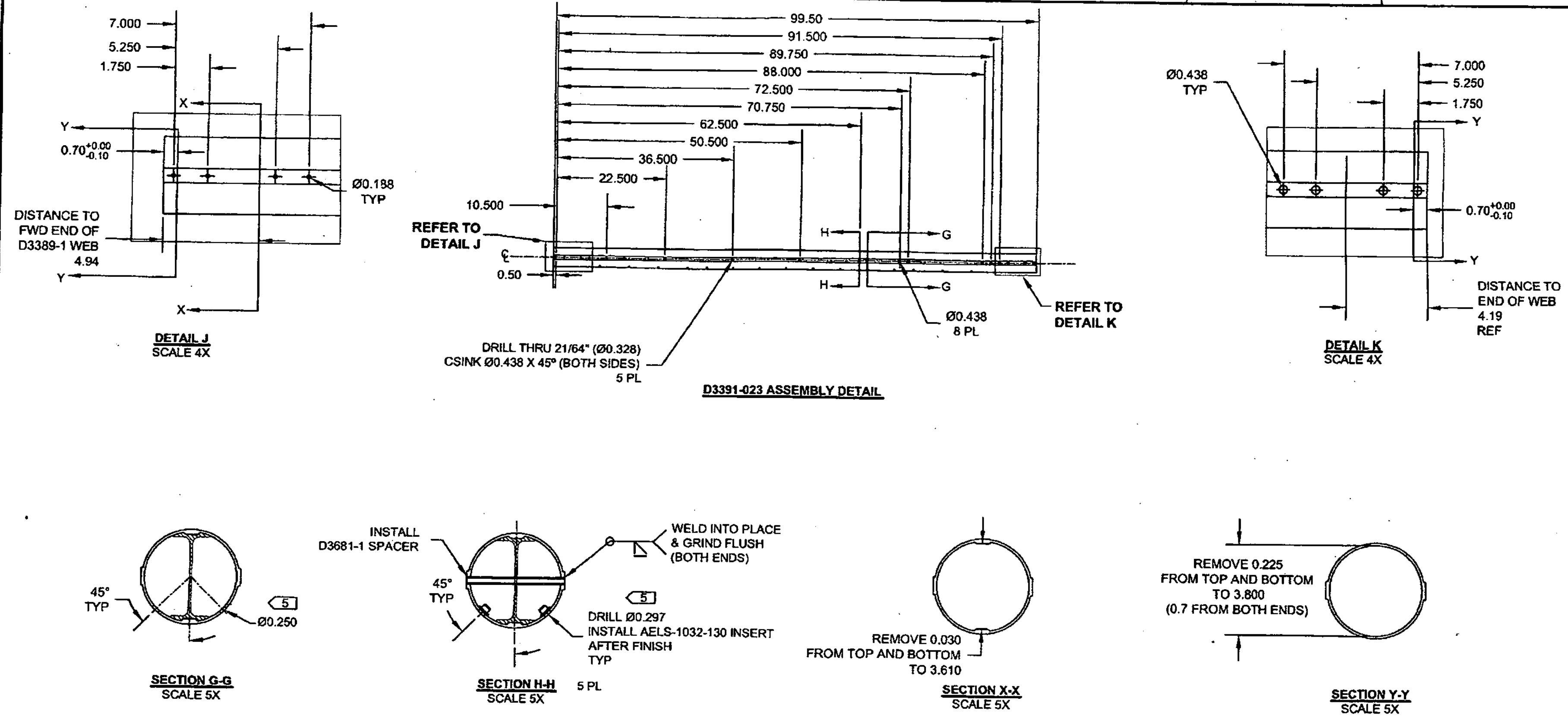
W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ PAR #: _______ Fault Category: __________________ NCR: Yes No DQA: _____ Date: _________

Resolution: ____________________ Disposition: ____________________ QA: N/C Closed: __________ Date: _________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



RELEASED 2011-11-04

D3391-023 MID TUBE ASSEMBLY PARTS LIST

QTY - 023	PART NUMBER	DESCRIPTION
X	D3391-023	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
5	D3681-1	SPACER
20	AELS-1032-130	INSERT

D3391-023 MID TUBE ASSEMBLY

1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015
3) WELDING: PER DART QSI 004

DESIGN	PH	**DART AEROSPACE USA, INC** KENT, WA
DRAWN	XDF	
CHECKED		DRAWING NO. D3391 — REV. I — SHEET 6 OF 8
MFG. APPR.		
APPROVED		TITLE 412 FLOAT SKIDTUBE — SCALE NTS
DE APPR.		
DATE	11.10.13	

Dart Aerospace Ltd

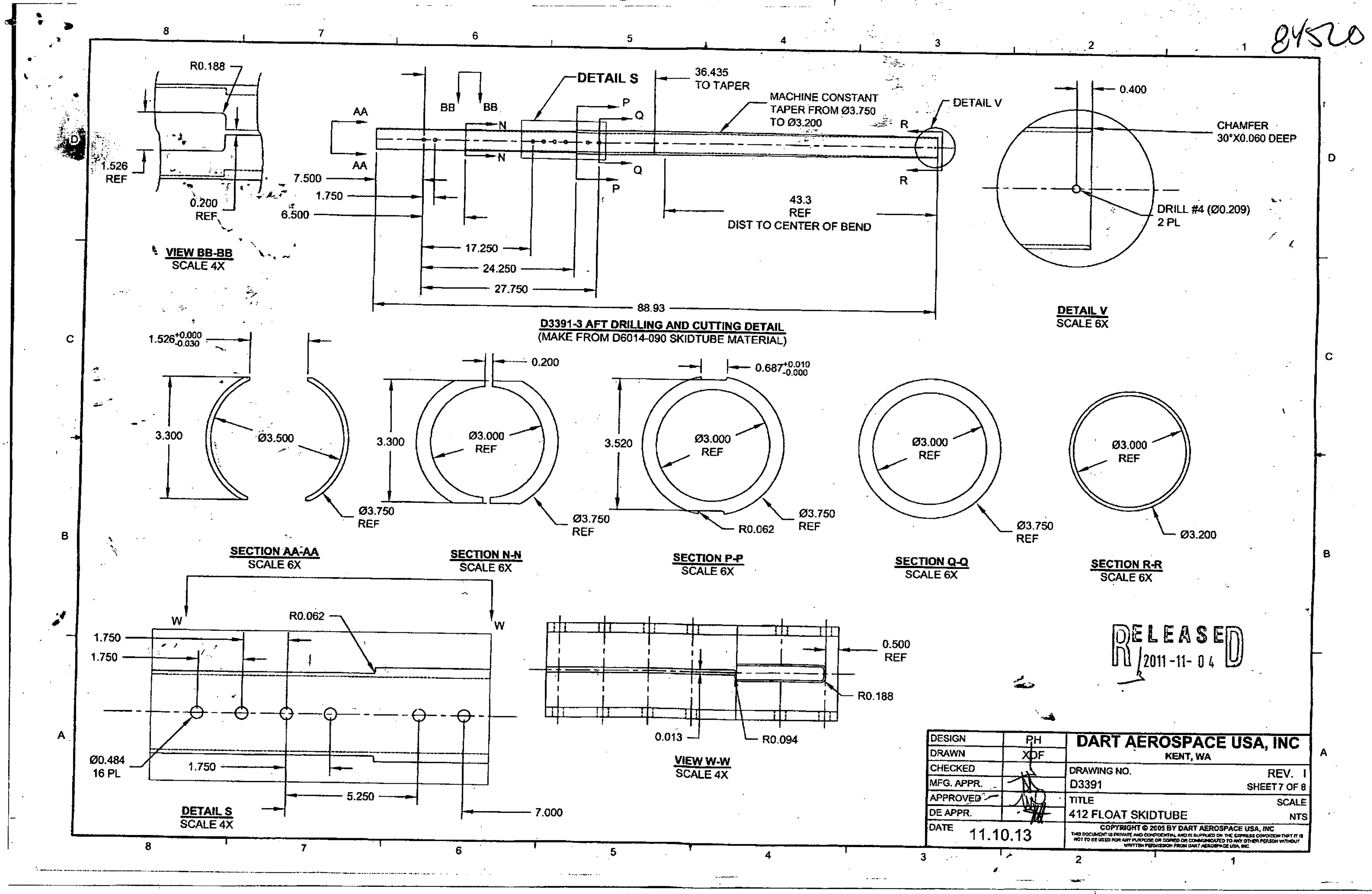
W/O:	WORK ORDER CHANGES						
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
			Corrective Action Section B					
DATE	**STEP**	**Description of NC** Section A	**Initial** Chief Eng	**Action Description** Chief Eng	**Sign & Date**	**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector

NOTE: Date & initial all entries


84520
VIEW BB-BB
SCALE 4X
R0.188
1.526 REF
0.200 REF
DETAIL S
36.435 TO TAPER
MACHINE CONSTANT TAPER FROM Ø3.750 TO Ø3.200
DETAIL V
7.500
1.750
6.500
17.250
24.250
27.750
88.93
43.3 REF DIST TO CENTER OF BEND
D3391-3 AFT DRILLING AND CUTTING DETAIL
(MAKE FROM D6014-090 SKIDTUBE MATERIAL)
0.400
CHAMFER 30°X0.060 DEEP
DRILL #4 (Ø0.209) 2 PL
DETAIL V
SCALE 6X
1.526 +0.000 -0.030
3.300
Ø3.500
Ø3.750 REF
SECTION AA-AA
SCALE 6X
0.200
Ø3.000 REF
SECTION N-N
SCALE 6X
0.687 +0.010 -0.000
3.520
R0.062
SECTION P-P
SCALE 6X
SECTION Q-Q
SCALE 6X
Ø3.200
SECTION R-R
SCALE 6X
1.750
Ø0.484 16 PL
5.250
7.000
DETAIL S
SCALE 4X
0.500 REF
R0.188
0.013
R0.094
VIEW W-W
SCALE 4X
RELEASED 2011-11-04
DESIGN PH
DRAWN XDF
CHECKED
MFG. APPR.
APPROVED
DE APPR.
DATE 11.10.13
DART AEROSPACE USA, INC
KENT, WA
DRAWING NO. D3391
REV. I
SHEET 7 OF 8
TITLE 412 FLOAT SKIDTUBE
SCALE NTS
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Dart Aerospace Ltd

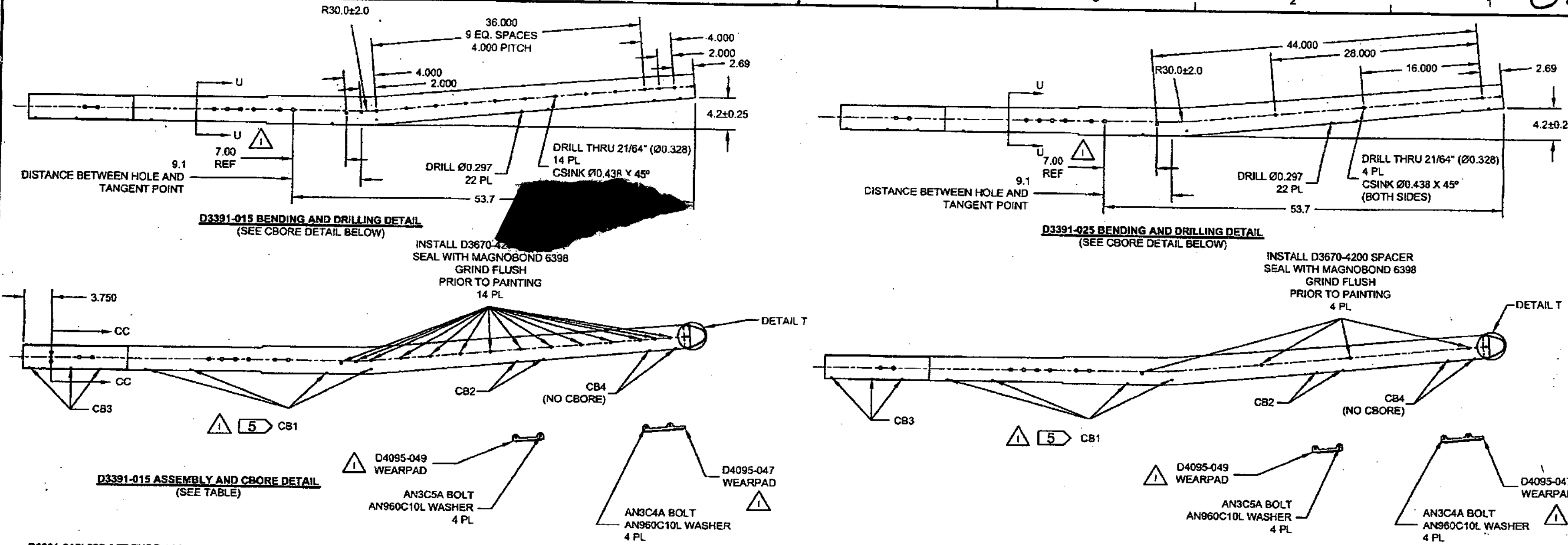
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ **PAR #:** _______ **Fault Category:** __________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

Resolution: ___________________ **Disposition:** ____________________ **QA: N/C Closed:** __________ **Date:** _________

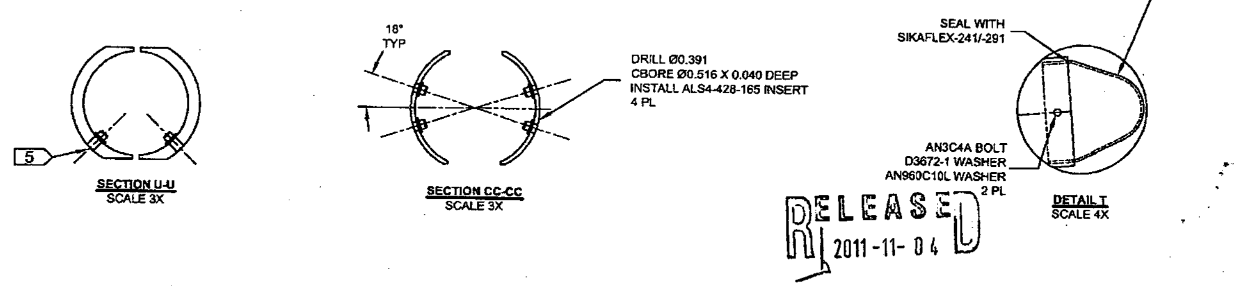
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
			Corrective Action Section B					
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector

NOTE: Date & initial all entries



D3391-015/-025 AFT TUBE ASSEMBLY PARTS LIST

QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X		D3391-015	AFT TUBE ASSEMBLY
	X	D3391-025	AFT TUBE ASSEMBLY
1	1	D2646	AFT CAP
14	4	D3670-4200	SPACER
2	2	D3672-1	WASHER
1	1	D4095-049	WEARPAD
1	1	D4095-047	WEARPAD
1	1	D6014-090	AFT TUBE
14	14	AELS-1032-130	INSERT
8	8	AELS-1032-225	INSERT
4		ALS4-428-165	INSERT
6	6	AN3C4A	BOLT
4	4	AN3C5A	BOLT
10	10	AN960C10L	WASHER



C'BORE HOLES MARKED CB1-CB4 AS FOLLOWS AND INSTALL AELS-1032-XXX AFTER FINISH AS NOTED

HOLES MARKED	QTY D3391-015	QTY D3391-025	CBORE	P/N
CB1	8	8	Ø0.430 X 0.170	AELS-1032-225
CB2	4	4	Ø0.430 X 0.170	AELS-1032-130
CB3	6	6	Ø0.430 X 0.040	AELS-1032-130
CB4	4	4	NONE	AELS-1032-130

DESIGN	PH	DART AEROSPACE USA, INC KENT, WA
DRAWN	XDF	
CHECKED		DRAWING NO. D3391 — REV. I — SHEET 8 OF 8
MFG. APPR.		
APPROVED		TITLE: 412 FLOAT SKIDTUBE — SCALE NTS
DE APPR.		
DATE	11.10.13	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
			Corrective Action Section B					
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector

NOTE: Date & initial all entries